

RESPONSE TO OFFICE ACTION
Serial No. 10/624,763
Page 6 of 9

REMARKS

This response is intended as a full and complete response to the Office Action dated March 11, 2003. In view of the amendments and the following discussion, the Applicant believes that all claims are in allowable form.

CLAIM REJECTIONS

A. 35 U.S.C. §112 Claims 1-18

The Examiner rejected claims 1-18 as being indefinite. Specifically, the Examiner stated that, in claims 1, 7, and 13, the limitation "forming a first mask through one or more layers of the multilayer stack" was read for purposes of examination as: "forming a first mask by patterning one or more layers of the multilayer stack." The Applicant has amended claims 1, 7, and 13 accordingly. Thus, the Applicant submits that claims 1-18 fully satisfy the requirements of 35 U.S.C. §112, and respectfully request the rejection be withdrawn.

B. 35 U.S.C. §103(a) Claims 1, 4, 5, 7, 10, 11, 13, 16, and 17

Claims 1, 4, 5, 7, 10, 11, 13, 16, and 17 stand rejected as being anticipated by United States Patent No. 6,080,291 issued Jul. 27, 1982 to *Coane* in further view of United States Patent No. 5,358,885 issued Oct. 25, 1994 to *Oku et al.* (hereinafter referred to as "*Oku*"). In response, the Applicant has amended claims 1, 4, 7, 10, 13, and 16 to more clearly recite aspects of the invention.

Independent claims 1, 7 and 13, as amended, recites limitations not taught, shown or suggested by *Coane* and *Oku*. *Coane* teaches to fabricating a T-shaped metal electrode 22 on a substrate 10 using a single composite mask having a middle layer 14 and bottom and top layers 12 and 16 (FIGS. 1a-1c, 2a-2f, Abstract). The composite mask is disposed on a substrate 10. The layer 14 is formed from metal and layers 12 and 16 are both formed from electron-beam sensitive resist (polymethylmethacrylate), respectively. *Coane* does not teach, show or suggest forming a conformal second mask on one or more sidewalls of a first mask, etching an opening in a multilayer stack using the second mask, filling the opening with at least

265871

RESPONSE TO OFFICE ACTION
Serial No. 10/624,763
Page 7 of 9

one of doped and undoped polysilicon, and removing the multilayer stack from the substrate leaving thereon a polysilicon feature, as recited in claims 1, 7 and 13.

Oku teaches forming a T-shaped gate electrode 15 in an opening that is patterned in a transistor film stack. The opening is filled by depositing a blanket insulating layer 8 over the film stack. The layer 8 is etched back such that portions of the layer remain on sidewalls of the opening and form a protective aperture 8a that tapers off towards a channel region W2 of the transistor. A plurality of metal layers is then deposited and patterned upon the layer 8 to form the metallic gate electrode 15, and, finally, the layer 8 and portions of the film stack are removed (Figs. 2a-2i; col. 5, line 5 - col. 7, line 28).

In contrast with the Examiner's assessment in paragraphs 4-6 of the Office Action, the layer 8 is not a second etch mask but a sacrificial barrier layer that is deposited over the transistor film stack after a resist pattern (mask) 7 has been removed (*Oku*, Figs 2c-2e). The Applicant kindly requests clarification to which layer of the film stack, present during deposition of the layer 8, the Examiner refers to as the first mask.

Furthermore, in contrast with the Examiner's assessment in paragraph 5 of the Office Action in reference to claims 4, 10, and 16, the insulating layer 8 of *Oku* is a blanket filler layer and not a conformal layer (*Oku*, FIG. 2e). More specifically, the layer 8 fills the opening in layers 4 and 5, as well as non-conformally covers the layer 6 (Fig. 2e). As such, the layer 8 is not conformal to the mask 7 or any other layer of the transistor film stack.

Therefore, *Oku* does not teach, show or suggest forming a conformal second mask on one or more sidewalls of a first mask, etching an opening in a multilayer stack using the second mask, filling the opening with at least one of doped and undoped polysilicon, and removing the multilayer stack from the substrate leaving thereon a polysilicon feature, as recited in claims 1, 7 and 13.

A combination of *Coane* (a composite mask) and *Oku* (a metal gate electrode) would not yield Applicant's invention. The Examiner's attention is also directed to the fact that, in Applicant's invention, the T-shaped gate electrode is formed from a filler non-metallic material (polysilicon) by removing adjacent portions of the multilayer stack

RESPONSE TO OFFICE ACTION
Serial No. 10/624,763
Page 8 of 9

using an etch process. Oppositely, both *Coane* and *Oku* teach to form a metal electrode in the openings in the respective surrounding layers by depositing one (*Coane*) or several (*Oku*) metal layers into such openings. As such, *Coane* and *Oku*, alone or in combination, would not produce the Applicant's invention, as recited in claims 1, 7 and 13.

Furthermore, claims 4, 5, 10, 11, 16, and 17 depend, either directly or indirectly, from claims 1, 7, and 13 and recite additional features therefor. Since the combination of *Coane* and *Oku* would not produce Applicant's invention, dependent claims 4, 5, 10, 11, 16, and 17 and 12-15 are also not obvious and are allowable.

Thus, the Applicant submits that independent claims 1, 7, and 13 and claims 4, 5, 10, 11, 16, and 17 depending therefrom are patentable over *Coane* in view of *Oku*. Accordingly, the Applicant respectfully requests the rejection be withdrawn.

C. 35 U.S.C. §103(a) Claims 2, 3, 6, 8, 9, 12, 14, 15, and 18

Claims 2, 3, 6, 8, 9, 12, 14, 15, and 18 stand rejected as being unpatentable over *Coane* in view of *Oku* and in further view of United States Patent No. 6,551,941 B1 issued April 22, 2003 to *Yang et al.* (hereinafter referred to as "*Yang*"). The Applicant disagrees.

As *Yang* was filed February 22, 2001 and issued April 22, 2003 after the Applicant's July 22, 2002 effective filing date, *Yang* is a 102(e) type reference. *Yang* is assigned to Applied Materials, Inc. As the Applicant was an employee of Applied Materials, Inc., at the time of the invention, the Applicant was obligated to assign the rights to the invention to Applied Materials, Inc. Thus, the Applicant's invention and *Yang* were commonly assigned at the time of the Applicant's invention. Since this application is filed after November 29, 1999, *Yang* does not preclude patentability under the provisions of 35 U.S.C. § 103(c), as amended by the American Inventors Protection Act of 1999. See MPEP 706.02(I)(1).

RESPONSE TO OFFICE ACTION
Serial No. 10/624,763
Page 9 of 9

As discussed above, Independent claims 1, 7 and 13, and allow claims depending therefrom, are patentable over the combination of *Coane* and *Oku*. Thus, the Applicant submits that independent claims 1, 7, and 13 and 2, 3, 6, 8, 9, 12, 14, 15, and 18 depending therefrom, are patentable over *Coane* in view of *Oku* and *Yang*. Accordingly, the Applicant respectfully requests the rejection be withdrawn.


CONCLUSION

Thus, the Applicant submits that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

June 11, 2004

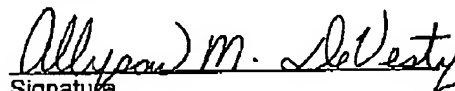


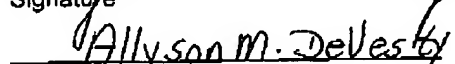
KEITH TABOADA, Attorney
Reg. No. 45,150
(732) 530-9404

Moser, Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Suite 100
Shrewsbury, NJ 07702

CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. 1.8

I hereby certify that this correspondence is being transmitted by facsimile under 37 C.F.R. §1.8 on June 11, 2004 and is addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, Facsimile No. (703) 872-9306.



Signature


Printed Name of Person Signing
6-11-04

Date of signature